Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-64. Canceled.

65. (Currently amended) A computer-implemented process for producing a representation of a reference spectrum for a ~~reference~~hypothetical solution having a first pH condition, for use in determining the composition of a test sample, the process comprising:

producing a position value for at least one peak of the reference spectrum in response to a measured pH condition of the test sample, and a property of at least one peak in a base reference spectrum for the ~~reference~~hypothetical solution, the base reference spectrum being associated with a pH condition of the ~~reference~~hypothetical solution that is different from said measured pH condition.

66. (Previously presented) The computer-implemented process of claim 65 wherein producing a position value comprises interpolating said position value from position values associated with base reference spectra associated with a pH condition nearest to said measured pH condition.

67. Canceled.

68. (Previously presented) The computer-implemented process of claim 65 wherein producing a position value comprises producing said position value by addressing a lookup table of position values with a measured pH condition value representing said measured pH condition of said test sample.

69. (Currently amended) The computer-implemented process of claim 65 further comprising accessing a pre-defined record specifying peaks in said reference spectrum and wherein producing said position value comprises adjusting a position value in said pre-defined record, said position value in said pre-defined record being said position value of said at least one peak.

70. (Previously presented) The computer-implemented process of claim 69 wherein adjusting comprises locating a pH condition value dependent function in said pre-defined record, producing said position value from said pH condition value dependent function and associating said position value with said pre-defined record.

71. (Previously presented) The computer-implemented process of claim 70 wherein associating comprises storing said position value in said pre-defined record.

72. (Previously presented) The computer-implemented process of claim 69 wherein adjusting comprises locating in said pre-defined record a link to a lookup table specifying peak positions for various pH conditions and retrieving said position value from said lookup table and associating said position value with said pre-defined record.

73. (Previously presented) The computer-implemented process of claim 72 wherein associating comprises storing said position value in said pre-defined record.

74. (Currently amended) A computer-readable medium encoded with computer readable instructions for causing a processor circuit to produce a representation of a reference spectrum for a ~~reference~~hypothetical solution having a first pH condition, for use in determining the composition of a test sample, the instructions comprising:

a set of codes for directing the processor circuit to produce a position value for at least one peak of the reference spectrum in response to a measured pH condition of the test sample, and a property of at least one peak in a base reference spectrum for the ~~reference solution. The~~hypothetical solution, the base reference spectrum being associated with a pH condition of the ~~reference~~hypothetical solution that is different from said measured pH condition.

75. (Currently amended) A signal encoded with computer-readable instructions operable to cause a processor circuit to produce a representation of a reference spectrum for a ~~reference~~hypothetical solution having a first pH condition, for use in determining the composition of a test sample, the signal comprising a signal segment comprising codes operable to cause the processor circuit to produce a position value for at least one peak of the reference spectrum in response to a measured pH condition of the test sample, and a property of at least one peak in a base reference spectrum for the ~~reference~~hypothetical solution, the base

reference spectrum being associated with a pH condition of the ~~reference~~hypothetical solution that is different from said measured pH condition.

76. (Currently amended) An apparatus for producing a representation of a reference spectrum for a ~~reference~~hypothetical solution having a first pH condition, for use in determining the composition of a test sample, the apparatus comprising a processor circuit programmed to produce a position value for at least one peak of the reference spectrum in response to a measured pH condition of the test sample, and a property of at least one peak in a base reference spectrum for the ~~reference~~hypothetical solution, the base reference spectrum being associated with a pH condition of the ~~reference~~hypothetical solution that is different from said measured pH condition.

77. (Currently amended) An apparatus for producing a representation of a reference spectrum for a ~~reference~~hypothetical solution having a first pH condition, for use in determining the composition of a ~~test~~test sample, the apparatus comprising:

means for receiving a measured pH condition value representing a pH condition of the test sample;

means for receiving a representation of a position value of at least one peak in a base reference spectrum for the ~~reference~~hypothetical solution; and

means for producing a position value for at least one peak of the reference spectrum in response to said measured pH condition value of the test sample, and the position value of said at least one peak in said base reference spectrum, the base reference spectrum being associated with a pH condition of the ~~reference~~hypothetical solution that is different from said measured pH condition.